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## **BOOK REVIEW: ROBERT WILLIAM SANDFORD'S STORM WARNING: WATER AND CLIMATE SECURITY IN A CHANGING WORLD**

REVIEWED BY OMAR ANTONIO ANDUAGA BOCANEGRA\*

ROBERT WILLIAM SANDFORD, *STORM WARNING: WATER AND CLIMATE SECURITY IN A CHANGING WORLD* (Rocky Mountain Books, 2006)

*Storm Warning*, a very informative and scientific-data oriented book, seems to aspire to create a bridge between past experiences, modern research data, the process of acquisition of knowledge and policy-making in the light of water issues, global warming, and the need of action-taking of the government and people in Canada. To this end, the author provides scientific-research conclusions; comparative analysis of data (mostly in response to skeptical views to climate change); a historical-agreement timeline regarding different water and climate protection related treaties in Canada; and, finally, a consolidated policy roadmap synthesizing the conclusions of his analytical journey to provide a way to finally be aware and give real steps to take action before "the storm finally arrives."

While the book clearly advocates for people to wake up to the existence of a rapid-rate warming of waters and climate in general, readers, who may be still skeptical or disagree with his ideas, would still enjoy the analysis from a multi-disciplinary approach around water issues. The author includes different approaches from a variety of fields such as science, policy-making, international relations, public affairs, trade, and economics. Moreover, what is most interesting, the author includes the role of aborigines and their communities in the building of a society with more conscience of what is happening in regards to global warming in the Northwest Canada territories.

This combination guarantees the reader will enjoy a transversal-mental discussion, which would only enrich her arguments in favor or against the topic. The goals of this book seem to be, first and foremost, to create awareness; share scientific data to help the reader start identifying where he stands on the topic; and,

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finally, provide a way for the reader to be more involved in finding solutions by creating a bridge between science and public policy.

For someone who is not familiar with the climate change topic, this book is without doubt a good place to begin. Sandford presents the concrete case of Canada for every discussion he provides, which serves as a tangible reference for the readers. To orient the readers, the book provides a description of the current problems and regulations at the federal and local levels; identifies social and governmental problems as absence of commitment, underfunding, lack of disaster mitigation, droughts, low water quality; and, finally, provides a suggestion of the current challenges.

This concrete example of Canada, added to a vast presentation of theoretical-analysis, comparative data, historical influences, cultural considerations, policy-making strategies, and scientific findings, allows the reader to explore different perspectives, provide him tools to make his own diagnostics, and, finally, identify possible solutions to the problems, if after the fourth chapter, the readers identify some. The collection of different tools for the reader, in one single book, is probably one of the best values of this book. For these purposes, the book is structured into ten chapters dedicated to different problems, approaches, and steps towards building the interdisciplinary bridge that the author wants to create in the pages of this book.

Chapter 1 of the book provides the stones for the bridge-building that the author finally shares with the readers in Chapter 10. The first eight chapters provide all the tools to get to that point. While reading, readers should have in mind the author's twelve steps proposed to achieve the necessary reforms that he discusses with the reader throughout the book.

The steps each reader should keep in mind, while reading through the different ideas the author tries to share and the concrete cases he presents, are: (1) value and conservation of water, (2) urge governments to value water and provide sustainable policies, (3) recognize and value the established knowledge and experience on the topic, (4) support the sustainability of water, (5) recognize the value of comprehensive monitoring, (6) recognize and support the role of education, (7) recognize water as a human right, (8) provide support to holistic approaches to managing watersheds, (9) recognize the importance of groundwater, (10) recognize the value of developing coordinated long-term national strategies for water sustainability, (11) create a water commission at the governmental level, and (12) an ongoing commitment to articulation and promotion of water ethics.

This book, not only tries to identify problems, but after its analysis and comparative approach, attempts to provide guidelines or solutions, giving that final touch of concreteness that readers sometimes miss when they read books with scientific data and interdisciplinary discussions.

The first chapters focus on the concept of awareness and the options of adapting or coping with the problem that is already happening and being underestimated by authors of media projects like "Climategate" or "The Day After Tomorrow." The author's main focus here is to foster the importance of building

one's arguments regarding climate change with a scientific method and scientific findings.

This will allow governments to finally get the necessary tools to implement policies with a solid understanding and learning from past investigations, research, and institutional cooperation. These policies will enable the identification of solutions that will not only effect the water-related issues, but also the socio-economic and natural systems connected to climate change. Particularly, the book identifies how climate change largely relates to water, and how its study is in the need of interdisciplinary and inter-institutional cooperation to create solid policies related to climate security.

The warming of the Arctic and the impact of the snow and mountain areas in Canada (specifically the Peyto Glacier, the Columbia Ice field, and the deglaciation of the West) are very helpful examples in understanding the impact of global warming. The author starts explaining these phenomena by describing the scientific impact of the changing composition of elements in the atmosphere; then, he continues his narrative matching these natural problems to political challenges where major water policy reforms are necessary.

Along this line of thought, the author recognizes that Canada should learn from what the world has been doing in the past decades. It is also important to highlight how signs of leadership and an adaptive response to the changing eco-hydro-climate circumstances over time have grown in local communities; despite this, there is a need for sustainability efforts and the construction of a nationwide national strategy.

The next chapters focus more on water itself and its regulation. The author starts with the loss of hydrological stability and its consequences, and includes a very interesting discussion about the war that exists between social theories and physical sciences. The author, who seems to be a rather scientific person, does a great job in providing a summary of the intense debate between these two approaches, with the final goal being to advocate for the creation of bridges between both of them. Subsequently, the author provides three examples of past conferences, specific water regulations, and community involvement as the solution to these problems.

The Ottawa conference case contextualizes why it is important to learn from the past. The cases of Lake Winnipeg and the Columbia basin, on the other hand, relate to the relationship of these issues with the aboriginal people, water, food supplies, energy, biodiversity, and social justice. When advocating for reconsideration of the Columbia River Treaty and explaining the consequences of species endangerment, like the Salmon of the Nechako, the author makes an illustrative point, which is transversal to the entire book: the relationship of history, governmental indifference, the fundamental rights of the communities, and decision-makers' responsibilities must ultimately result in the creation of water ethics as a guideline for policy-making.

The final chapters effectively address how to construct a roadmap for adapting to – rather than coping with – climate change, the creation of policies that

value water appropriately, and the promotion of wise-use and conservation of water. At the same time, the steps and proposals the author suggest urge governments to value nature's needs in a sustainable way, design infrastructure for water supply, with comprehensive monitoring creating an intersectional partnership to find targeted solutions, and, finally, construct those bridges between the research community and new knowledge in government.

"Is global warming really happening?" Many readers have faced this question, probably more than once, while having coffee with colleagues, lunch with friends, or simply watching the morning news. Some will have an answer ready in their minds, some will not. But in order to form one's opinion, it is important to have enough information to justify one's posture.

This book provides exactly that by providing a lot of comparative information and using concrete examples of what is happening in Canada to give the readers the necessary tools to share or not the enthusiasm of the author regarding this topic. Additionally, the information empowers readers to propose new ideas and educates policy-makers with critical knowledge. Ultimately, whatever one's personal inclinations might be, it is about the planet we all live in, right? It seems worth it to be fully informed of the diagnostics and the prognosis of the state of the issue, just in case.